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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,687	08/11/2003	Kun-chih Lin	ADTP0067USA	1686

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NORTH AMERICA INTERNATIONAL PATENT OFFICE (NAIPC)
P.O. BOX 506
MERRIFIELD, VA 22116

EXAMINER

GUERRERO, MARIA F

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,687

Applicant(s)

LIN, KUN-CHIH

Examiner

Maria Guerrero

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to the amendment and the Request for continued examination filed March 21, 2005.

Status of Claims

2. Claims 1-26 are pending.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 21, 2005 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 6, 7, 10, 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (US 5,648,662).
5. Zhang et al. shows providing a substrate (having a buffer layer) defined with a first region and a second region (Fig. 1(a), col. 7, lines 1-25, col. 10, lines 1-10). Zhang

et al. discloses forming an amorphous silicon film on the substrate, forming a mask layer (multi-layer structure, metal layer) on the amorphous silicon film, performing a first photo-etching process to remove the mask layer on the first region (Fig. 1(a)-1(b), col. 2, lines 30-14, col. 5, lines 50-65).

6. In addition, Zhang et al. teaches forming a heat-retaining capping layer (silicon oxide) covering the mask layer in the second region and the amorphous silicon film in the first region (Fig. 1(a), col. 2, lines 30-67, col. 3, lines 1-50). Zhang et al. describes performing the excimer laser crystallization process to make the amorphous silicon film covered by the heat-retaining capping layer in the first region crystallize to a polysilicon film (Abstract, Fig. 1(a)-1(b), col. 2, lines 30-65, col. 3, lines 1-50).

7. Claims 12-13, 16, 18, 20-21, 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (US 5,365,080).

Yamazaki et al. shows providing a substrate defined with a first region and a second region (Fig. 4A-4F, col. 3, lines 53-57). Yamazaki et al. discloses forming an amorphous silicon film on the substrate, forming a heat-retaining capping layer covering the amorphous silicon film on the first and the second regions (Fig. 4A-4F, col. 3, lines 53-57, col. 4, lines 1-65). Yamazaki et al. describes forming a mask layer on the heat-retaining capping layer Fig. 4C-4E, col. 4, lines 1-30).

Furthermore, Yamazaki et al. shows performing a first photo-etching process to remove the mask layer in the first region and expose the heat-retaining capping layer (Fig. 4C, col. 4, lines 5-14). Yamazaki et al. describes performing the excimer laser crystallization process to make the amorphous silicon film covered by the heat-retaining

capping layer in the first region crystallize to a polysilicon film (col. 4, lines 24-30, 62-65, col. 6, lines 1-7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-7 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harkin et al. (U.S. 5,705,413).

Harkin et al. teaches a method of forming a polysilicon film by an excimer laser crystallization process (Abstract). Harkin et al. shows providing a substrate (having a buffer layer) defined with a first region and a second region (Fig. 1-2, col. 7, lines 1-25, col. 10, lines 1-10). Harkin et al. discloses forming an amorphous silicon film on the substrate, forming a mask layer on the amorphous silicon film, performing a first photo-etching process to remove the mask layer on the first region (Fig. 3-5, 13-14, col. 5, lines 50-65 col. 6, lines 1-20, col. 7, lines 24-67, col. 12, lines 49-67, col. 13, lines 1-17). Harkin et al. teaches forming a heat-retaining capping layer covering the mask layer and the amorphous silicon film (Fig. 3-5, col. 7, lines 40-67).

Furthermore, Harkin et al. shows performing the excimer laser crystallization process to make the amorphous silicon film in the first region crystallize to a polysilicon film (Fig. 5, col. 6, lines 1-20, col. 8, lines 9-25). Harkin et al. discloses an etching

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process to remove the heat-retaining layer, the mask layer, and to etch the portions of the amorphous film after forming the polysilicon film (Fig. 13-14, col. 4, lines 24-35, col. 9, lines 40-45, col. 13, lines 1-17). Harkin et al. teaches the mask layer and the heat-retaining capping layer comprising silicon oxide, silicon nitride, silicon oxynitride or a metal (col. 3, lines 47-50, 63-67, col. 4, lines 1-4).

9. In addition, Harkin et al. describes the masking pattern (20,21) having a thermally-stable absorbent layer or reflective inorganic material and an insulating layer having sufficient thickness to mask the amorphous film. Therefore, Harkin et al. shows forming a heat-retaining capping layer covering the mask and forming a mask layer on the heat-retaining capping layer (Abstract, col. 2, lines 58-67, col. 3, lines 1-5, col. 3, lines 25-67, col. 4, lines 1-24).

10. Harkin et al. also discloses optional portions of the mask or the heat-retaining capping layer layer are covering areas not covered by the first and second portions of the amorphous layer during the energy beam exposure (Fig. 5, col. 9, lines 10-22). Harkin et al. describes the energy beam exposure may be carried out on a continuous semiconductor film 1 (amorphous) with masking pattern 20,21 and may be separated by etching after the energy beam exposure step (col.13, lines 12-17).

11. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to recognize that part of the layer being crystallized was covered with the heat-retaining capping layer in Harkin et al. reference because Harkin et al. suggested that small-area components of different crystallinity would be formed (Abstract).

12. Claims 10-11 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harkin et al. (U.S. 5,705,413) in view of Kawasaki et al. (U.S. 6,426,245).

13. Regarding claims 10-11 and 21-22, Harkin et al. does not specifically show the long duration laser having a period in a range of about 150 to 250 ns. However, Kawasaki et al. teaches the excimer laser having a period from several nanoseconds through several hundred nanoseconds (col. 4, lines 58-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to specify any desired period on Harkin et al. reference as taught by Kawasaki et al. in order to optimize the laser conditions and better control the crystallizing growth (Kawasaki et al., col. 4, lines 58-67).

In addition, it is the examiner's position that the period in a range of about 150 to 250 ns it is not critical to the invention. Therefore, "where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

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F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 12-19, 21-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12-20 of copending Application No. 10/604,485. Although the conflicting claims are not identical, they are not patentably distinct from each other because '485 anticipated the claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

15. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as

compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).


Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 10, 2005


MARIA F. GUERRERO
PRIMARY EXAMINER